

CLAIMS

1. A motor drive unit adapted to generate a motor drive signal for driving a motor when said motor is in rotational motion, but, when a motor lock-up condition of said motor is detected, stop said motor drive signal in dormant periods and generate said motor drive signal in startup trial periods, said startup trial periods interlaced with said dormant periods, said motor drive unit characterized by comprising:

a capacitor, which is charged or discharged to generate a voltage signal in accord with the electric charge stored in said capacitor;

a hysteresis-type comparator for generating a comparison output upon detection of said voltage signal reaching a predetermined threshold level;

a first charging circuit for charging said capacitor with first charging current when the drive current supplied to said motor has exceeded a predetermined level; and

a first discharging circuit for discharging said capacitor with said first discharging current based on said comparison output, and characterized in that

said dormant periods being periods in which said comparison output is generated, and said startup trial periods being periods in which said comparison output is not generated.

2. A motor drive unit adapted to generate a motor drive signal for driving a motor when said motor is in rotational motion, but, when a motor lock-up condition of said motor is detected, stop said motor drive signal in dormant periods and generate said motor drive signal in startup trial periods, said startup trial periods interlaced with said dormant periods, said motor drive

unit characterized by comprising:

a capacitor, which is charged or discharged to generate a voltage signal in accord with the electric charge stored in said capacitor;

a hysteresis-type comparator for generating a comparison output upon detection of said voltage signal reaching a predetermined threshold level;

a first charging and discharging circuit for charging said capacitor with second charging current and for discharging said capacitor in cycles of a period that is in accord with the rotational speed of said motor when said motor is in a rotational motion before the charge voltage of said capacitor reaches said threshold level;

a first charging circuit for charging said capacitor with first charging current when said motor drive current has exceeded a predetermined level; and

a first discharging circuit for discharging said capacitor with said first discharging current based on said comparison output, and characterized in that

said dormant periods are those periods in which said comparison output is generated, and said startup trial periods are those periods in which said comparison output is not generated.

3. The motor drive unit in accordance with claim 1 or 2, wherein said motor lock-up condition is detected based on said comparison output generated during driving of said motor.

4. The motor drive circuit in accordance with claim 1 or 2, characterized in that said first charging circuit includes

a voltage dropping circuit for generating a voltage drop associated with the drive current supplied to said motor;

a switching circuit switched by a voltage in accord with said voltage drop; and

a current regulation circuit connected in series with said switching circuit, and adapted to regulate said first charging current.

5. The motor drive unit in accordance with claim 4, characterized in that

said voltage dropping circuit has a resistor;
said switching circuit has a transistor; and
said current regulation circuit has a resistor.

6. The motor drive unit in accordance with claim 1 or 2, characterized in that said first charging circuit includes

a voltage dropping circuit for generating a voltage drop in accordance with the drive current supplied to said motor; and

a constant-current source switchable by a voltage associated with said voltage drop to supply said first charging current.

7. The motor drive unit in accordance with claim 1 or 2, characterized in that said first discharging circuit has a constant current circuit for supplying said first discharging current.

8. The motor drive unit in accordance with claim 1, characterized in that said comparison circuit and first discharging circuit are built in one semiconductor integrated circuit (IC), and that said capacitor and said first charging circuit are provided outside said IC.

9. The motor drive unit in accordance with claim 2, characterized in that said comparison circuit, first charging-discharging circuit, and first discharging circuit are built in one semiconductor integrated circuit (IC), and that said capacitor and first charging circuit are provided outside said IC.